

IN THE CLAIMS:

Claims 3, 6-16, 18, 19, 21, 24, 27-34, 36, 37, 39, 41-44, 47, 49-62, 67-79, and 81-94 were previously withdrawn from consideration and are being cancelled herein. Claims 1, 2, 4, 5, 17, 20, 22, 23, 25, 35, 38, 40, 45, 46, 48, 63, 64, 65, 66 and 80 have been amended herein. All of the pending claims are presented below. This listing of claims will replace all prior versions and listings of claims in the application. Please enter these claims as amended.

Listing of Claims:

1. (Currently amended) A stacked multiple-semiconductor die device, comprising:
a substrate having a surface;
at least one conductive bond area on the surface of the substrate;
a plurality of semiconductor dice having similar dimensions, each semiconductor die having an active surface including at least four edges, and ~~a backside;~~ back side;
a field of conductive bond pads disposed on the active surface of each semiconductor die, the field of conductive bond pads positioned along less than three edges of the active surface of a semiconductor die, ~~the backside~~ back side of a first semiconductor die being attached to the surface of the substrate adjacent the at least one conductive bond area of ~~said~~ the surface of the substrate and ~~the backside~~ back side of a second semiconductor die is attached to the active surface of the first semiconductor die in an offset position having the field of conductive bond pads of the first semiconductor die exposed;
conductors connecting bond pads of the first semiconductor die to the at least one conductive ~~bond-areas~~ area of the substrate; and
conductors connecting bond pads of the second semiconductor die to the at least one conductive ~~bond-areas~~ area of the substrate.

2. (Currently amended) The stacked multiple-semiconductor die device of claim 1, wherein ~~said~~ the plurality of semiconductor dice comprise a stack of semiconductor dice having one of substantially ~~the same~~ same dimensions and different dimensions.

3. (Cancelled)

4. (Currently amended) The stacked multiple-semiconductor die device of claim 1, wherein ~~said~~ the first semiconductor die is attached to ~~said~~ the substrate by a thin adhesive layer and ~~said~~ the second semiconductor die is attached to ~~said~~ the first semiconductor die by a thin adhesive layer.

5. (Currently amended) The stacked multiple-semiconductor die device of claim 1, wherein each semiconductor die has a field of conductive bond pads along one edge thereof, and the second semiconductor die being offset from the first semiconductor die in one direction to expose the field of conductive bond pads of the first semiconductor die for establishing connections from the field of conductive bond pads to the substrate.

6.-16. (Cancelled)

17. (Currently amended) The stacked multiple-semiconductor die device of claim 5, wherein each semiconductor die has a length greater than a width whereby rotation of one semiconductor die relative to an underlying adjacent semiconductor die offsets ~~said~~ the first semiconductor die to expose the field of conductive bond pads on at least one field of bond pads for attaching conductors thereto.

18. (Cancelled)

19. (Cancelled)

20. (Currently amended) The stacked multiple-semiconductor die device according to claim 1, in which ~~said~~ the substrate comprises one of a circuit board, circuit card, lead frame and tape automated bonding (TAB) tape.

21. (Cancelled)

22. (Currently amended) A high density stacked multiple-die device, comprising:
a substrate having a surface;
conductive bond areas on the surface of the substrate;
a plurality of semiconductor dice having substantially ~~the same~~ same dimensions, each semiconductor die having a rectangular active surface having at least four edges, and a ~~baekside;~~ back side;
a field of conductive bond pads disposed on the active surface of each semiconductor die, the field positioned along less than three edges thereof, ~~the baekside~~ back side of a first semiconductor die being attached to the surface of the substrate adjacent the conductive bond areas of ~~said~~ the surface of ~~said~~ the substrate, ~~the baekside~~ back side of a second semiconductor die being attached to the active surface of the first semiconductor die in an offset position having the field of conductive bond pads of the first semiconductor die exposed;
conductors connecting bond pads of the first semiconductor die to the conductive bond areas of the substrate; and
conductors connecting bond pads of the second semiconductor die to the conductive bond areas of the substrate.

23. (Currently amended) The high density stacked multiple-die device of claim 22, wherein ~~said~~ the plurality of semiconductor dice comprise a stack of semiconductor ~~die,~~ dice, each semiconductor die being one of substantially a same size and of a different size.

24. (Cancelled)

25. (Currently amended) The high density stacked multiple-die stacked device of claim 22, wherein ~~said~~ the first semiconductor die is attached to ~~said~~ the substrate by a thin adhesive layer and ~~said~~ the second semiconductor die is attached to ~~said~~ the first semiconductor die by a thin adhesive layer.

26. (Original) The high density stacked multiple-die device of claim 22, wherein each semiconductor die has a field of bond pads along one edge thereof, and the second semiconductor die is offset from the first semiconductor die in one direction to expose the bond pads of the first semiconductor die for establishing connections from the bond pads to the substrate.

27.-34. (Cancelled)

35. (Currently amended) The high density stacked multiple-die device of claim 26, wherein each semiconductor die has a field of bond pads along two adjacent edges thereof, and each of the second and subsequent semiconductor ~~die is~~ dice are offset from ~~its~~ their underlying semiconductor ~~die~~ dice in two directions exposing the bond pads thereof for conductive bonding and;

each semiconductor die is offset ~~in the~~ in same two directions relative to its underlying semiconductor die.

36. (Cancelled)

37. (Cancelled)

38. (Currently amended) The high density stacked multiple-die device of claim 26, wherein each semiconductor die has a length greater than a width whereby rotation of one semiconductor die relative to an underlying adjacent semiconductor die offsets ~~said~~ the first semiconductor die to expose the field of bond pads on at least one of ~~said~~ the field of bond pads for attaching ~~said~~ the conductors thereto.

39. (Cancelled)

40. (Currently amended) The high density stacked multiple-die device according to claim 22, in which ~~said~~ the substrate comprises one of a circuit board, circuit card, lead frame and tape automated bonding (TAB) tape.

41.-44. (Cancelled)

45. (Currently amended) A stacked multiple-semiconductor die device, comprising:
a substrate having a surface;
at least one conductive bond area on the surface of the substrate;
a plurality of semiconductor dice, each semiconductor die having one of similar dimensions and different dimensions, each semiconductor die having an active surface including at least four edges, and ~~a backside;~~ back side;
a field of conductive bond pads disposed on the active surface of each semiconductor die, the field of conductive bond pads positioned along less than three edges of the active surface of at least one semiconductor die, the ~~backside~~ back side of a first semiconductor die being attached to the surface of the substrate adjacent the at least one conductive bond areas of ~~said~~ the surface of ~~said~~ the substrate and the ~~backside~~ back side of a second semiconductor die is attached to the active surface of the first semiconductor die in an offset position having the field of conductive bond pads of the first semiconductor die exposed;

conductors connecting bond pads of the first semiconductor die to the at least one conductive bond-~~areas~~ area of the substrate; and
conductors connecting bond pads of the second semiconductor die to the at least one conductive bond-~~areas~~ area of the substrate.

46. (Currently amended) The stacked multiple-semiconductor die device of claim 45, wherein ~~said~~ the plurality of semiconductor dice comprise a stack of semiconductor dice having one of substantially different dimensions.

47. (Cancelled)

48. (Currently amended) The stacked multiple-semiconductor die device of claim 45, wherein each semiconductor die has a field of bond pads along one edge thereof, and the second semiconductor die being offset from the first semiconductor die in one direction to expose the field of conductive bond pads of the first semiconductor die for establishing connections from the field of conductive bond pads to the substrate.

49.-62. (Cancelled)

63. (Currently amended) A high density stacked multiple-die device, comprising:
a substrate having a surface;
conductive bond areas on the surface of the substrate;
a plurality of semiconductor dice having substantially different dimensions, each semiconductor die having a rectangular active surface having at least four edges, and a ~~backside~~, back side;
a field of conductive bond pads disposed on the active surface of each semiconductor die, the field of conductive bond pads positioned along less than three edges thereof, the ~~backside~~ back side of a first semiconductor die being attached to the surface of the substrate

adjacent the conductive bond areas of ~~said~~ the surface of the substrate, the ~~backside~~ back side of a second semiconductor die being attached to the active surface of the first semiconductor die in an offset position having the field of conductive bond pads of the first semiconductor die exposed;
conductors connecting bond pads of the first semiconductor die to the conductive bond areas of the substrate; and
conductors connecting bond pads of the second semiconductor die to the conductive bond areas of the substrate.

64. (Currently amended) The high density stacked multiple-die device of claim 63, wherein ~~said~~ the plurality of semiconductor dice comprise a stack of semiconductor ~~die~~, dice, each semiconductor die being one of substantially ~~the~~ a same size and of ~~the~~ a different size.

65. (Currently amended) The high density stacked multiple-die device of claim 63, comprising at least one additional semiconductor die having the ~~backside~~ back side attached to the active surface of the next lower semiconductor die in an offset position, the field of conductive bond pads of each semiconductor die exposed for attachment of ~~said~~ the conductors thereto.

66. (Currently amended) The high density stacked multiple-die device of claim 63, wherein each semiconductor die has a field of bond pads along one edge thereof, and the second semiconductor die is offset from the first semiconductor die in one direction to expose the field of conductive bond pads of the first semiconductor die for establishing connections from the field of conductive bond pads to the substrate.

67.-79. (Cancelled)

80. (Currently amended) The high density stacked multiple-die device according to claim 63, in which ~~said~~ the substrate comprises one of a circuit board, circuit card, lead frame and tape automated bonding (TAB) tape.

81.-94. (Cancelled)